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# MARINE SCIENCE TRAINING PROGRAM FOR ALASKA NATIVE STUDENTS

1. Final Report 1990  
USN/ONR N00014-J-3068
2. Progress Report 1991  
USN/ONR N00014-91-J-1266

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**KUSKOKWIM CAMPUS  
COLLEGE OF RURAL ALASKA  
UNIVERSITY OF ALASKA FAIRBANKS**

by

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**Dennis Schall**

**John Kelley**

**Vera Alexander**

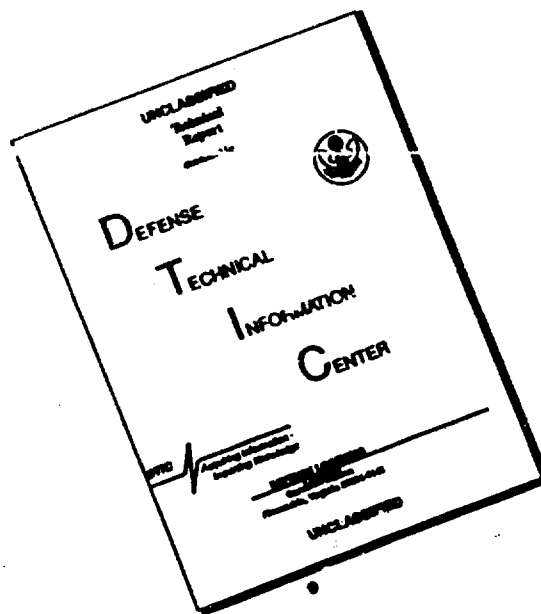
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August 1991

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# **MARINE SCIENCE TRAINING PROGRAM FOR ALASKA NATIVE STUDENTS**

- 1. Final Report 1990**  
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- 2. Progress Report 1991**  
**USN/ONR N00014-91-J-1266**



**KUSKOKWIM CAMPUS  
COLLEGE OF RURAL ALASKA  
UNIVERSITY OF ALASKA FAIRBANKS**

**by**

**Dennis Schall  
John Kelley  
Vera Alexander**



University of Alaska Fairbanks  
P.O. Box 368 • Bethel, Alaska 99559  
(907) 543-4500

August 1, 1991

**ANNUAL PROGRESS REPORT**

**To:** Department of the U. S. Navy  
Office of the Chief of Naval Research  
Code 1125 AR  
800 North Quincy Street, CODE 1512A:SAM  
Arlington, Virginia 22217-5000

**From:** John J. Kelley  
Associate Professor and Director PICO  
School of Fisheries and Ocean Sciences  
University of Alaska Fairbanks  
Fairbanks, Alaska 99775

Dennis G. Schall  
Kuskokwim Campus  
University of Alaska Fairbanks  
P.O. Box 368  
Bethel, Alaska 99559

**Re:** Annual Report to Office of Naval Research  
on continuing grant contract N00014-91-J-1266 and  
Final Technical Report on contract N00014-J-3068

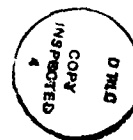
**Title:** A Marine Sciences Training Program for  
Alaska Native Students

**Principal Investigators:** Vera Alexander  
Professor and Dean  
School of Fisheries and Ocean Sciences  
SSN 099-26-1788

John J. Kelley  
Associate Professor  
School of Fisheries and Ocean Sciences  
and Director, PICO  
SSN 160-26-5059

Dennis G. Schall  
Assistant Professor  
SSN 505-56-3018  
Kuskokwim Campus

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Statement A per telecon Dr. Thomas Guntin  
ONR/Code 1125  
Arlington, VA 22217-5000  
NW 2/24/92

## **HISTORY OF THE TRANSFER OF THE GRANT TO THE UNIVERSITY OF ALASKA FAIRBANKS KUSKOKWIM CAMPUS**

### **STUDENTS**

This grant is a continuation of an internship for Alaska Native college students at the University of Alaska Fairbanks to encourage and nurture them in the field of marine sciences. Prior practice had been to provide limited part time laboratory experience and/or summer work experience at one of our marine laboratories- Seward Marine Center or Kasitsna Bay. In 1989 we decided that a more intensive internship with direct faculty involvement would be more effective. During the 1989-90 grant year (\$12,750) we were able to support the Ph.D. program of Mr. Richard Glenn on sea ice research (Appendix 1). Mr. Glenn reported directly to Dr. Lewis Shapiro and Dr. W. Weeks of the Geophysical Institute, UAF.

Mr. Glenn's participation in the program continued into the new grant year (7 November 1990, start - October 1991; \$60,000). In addition to the continuation of his research at Barrow he was approached by the North Slope Borough Barrow Gas Fields office to assist in the interpretation of the geological and geophysical records for developing under the East Barrow Gas Field or the Walakpa gas prospect.

The Walakpa prospect was chosen as the best candidate for development and recently proved to be the correct choice. Although Mr. Glenn plans to continue his research, he has requested a leave-of-absence from his Ph.D. program during the development state of the Walakpa gas field for which his services are greatly needed. In keeping with the philosophy of our mentorship program, Dr. Shapiro plans to keep at least a minimal research effort going with Mr. Glenn until he can resume full time studies.

Another student partially supported under this mentorship program was Rebecca Reynolds who worked on a comparative biochemistry project (Appendix 2). Her mentor was Dr. Lawrence Duffy. Two publications resulted from this internship (Appendix 2). Ms. Reynolds subsequently decided to embark on a Ph.D program at Stanford University. Dr. Duffy is working with another student, a Yupik Native from the Bethel area, who he wishes to support under this grant during the fall 1991 through 1992; i.e. into the third year of this grant.

Dr. James Sedinger, UAF Associate Professor of Biology, is the mentor for another Alaska Native student Terri Fitka. Terri is from Marshall, a village on the Yukon River. Terri has a cooperative position with the United States Fish and Wildlife Service and UAF. She is a Biology major and is involved in a study of distribution, population dynamics and use of estuarine habitats by black brant, a marine goose of the Pacific Coast. Terri will be returning to UAF in the fall 1991 for her Sophomore year (Appendix 3).

### **MINORITY SCIENCE IMPROVEMENT PROGRAM (MSIP)**

Drs. Kelley and Alexander were informed during the first phase of this program (1989-90; \$12,750) that the University of Alaska Fairbanks no longer qualified for minority status under the Department of Education-managed Minority Science Improvement Program (MSIP). Considerable time was expended in maintaining continuity with our students while finding a suitable and qualified institution to transfer the grant while maintaining the management goals.

Through the assistance of the College of Rural Alaska (Dr. Ralph Gabrielli, Associate Dean) we were eventually able to transfer the grant to the Kuskokwim Campus of the University of Alaska Fairbanks. Transfer was contingent upon receipt

of a letter of affirmation of accreditation from the U.S. Department of Education, MSIP Program (Appendix 4). This was obtained November 29, 1989.

A new proposal from the Kuskokwim Campus was submitted to the Office of Naval Research (ONR) in October 1990. Primary investigators were Drs. Vera Alexander and John Kelley, School of Fisheries and Ocean Sciences, University of Alaska Fairbanks (UAF), and Dr. Dennis Schall, Kuskokwim Campus, UAF. A grant from ONR was awarded dated November 7, 1990, to the Kuskokwim Campus with the cognizant principal investigator being D. Schall. Dr. Schall received notice of the award in February 1991 and acknowledged receipt of the grant documents on February 8, 1991.

#### **AMERICAN INDIAN SCIENCE AND ENGINEERING SOCIETY (AISES)**

The University of Alaska Fairbanks supports a chapter of the American Indian Science and Engineering Society (AISES). AISES is a highly respected nationwide organization for Native College students interested in science, math, and engineering. We strongly support the objectives of AISES particularly the peer reinforcement of the students desire to stay in school and succeed. We contributed \$1000 to support the travel of AISES participants to the National Conference. AISES has been a source of students for our program.

#### **SUPPORT PROGRAMS**

The University of Alaska Fairbanks provides several support services and programs specifically designed for Alaska Native students. These programs are designed to recruit, retain, and encourage success for Alaska Native students in higher education.

The Rural Student Services (RSS) at UAF provides orientation activities for prospective Native students from the states rural high schools. In addition RSS provides the Alaska Native students with assistance in admission to the University, financial aid, housing, and University life. However, their main function is academic advising, personal counseling, peer counseling and referrals to other campus support services

The Student Support Services Project (SSSP) at UAF provides a wide range of academic and personal support for Alaska Native students. They provide diagnostic math and reading evaluation and a wide range of developmental courses to help insure success in core college courses. In addition SSSP, a federally funded program, provides individual tutoring and group tutoring.

A third program at UAF is the Rural Alaska Honor Institute (RAHI) which takes Alaska Native students that are junior in high school and provides them a six week taste of college life during the summer. The selected Alaska Native students take core curriculum courses in mathematics, writing, a major research paper, Native studies, college orientation, a team research project and swimming. Elective specialty courses are available in the major disciplines (Appendix 5).

These programs enhance and support our philosophy of mentorship for Alaska Native students in marine sciences and goals of this grant.

## A MARINE SCIENCES TRAINING PROGRAM FOR ALASKA NATIVE STUDENTS

### INTRODUCTION

The University of Alaska proposed to develop and offer a training program in oceanography and related areas for Alaska Native students. Alaska has a very extensive coastline (more than 7500 miles), and is surrounded by a number of distinct oceanic and continental shelf areas from the Gulf of Alaska through the Bering, Chukchi, and Beaufort Seas. A large proportion of the Alaska Native population lives in coastal villages, and these coastal villages have a strong subsistence and cultural affinity with the sea. While the residents have not had opportunity for formal training related to the marine environment, they have a wealth of pragmatic knowledge. This program has introduced them to areas of science that relate directly to their interests, and can be the vehicle to attract Alaska Native residents into scientific fields.

The University of Alaska Fairbanks' marine sciences instructional program is primarily a graduate program leading to the M.S. or Ph.D. degrees. This program includes training and experience in the disciplines of physics, biology, and chemistry and geology applied to oceanographic topics. There is a very strong tradition in research through the Institute of Marine Science and its companion research institutes, the Geophysical Institute and the Institute of Arctic Biology, as well as the College of Natural Sciences, the College of Rural Alaska, and the School of Engineering. The capability of offering a strong research experience coupled with the instructional program at the University can afford a rich educational and research training opportunity for Native Alaska students.

The University of Alaska Fairbanks is recognized as a leader in meeting the post-secondary educational needs of Alaska Natives. The campus has long recognized the need to provide undergraduate, lower division student with a science experience steeped in instruction research directly related to the subsistence environment in which they live. It is strongly believed that providing lower division students with an opportunity to explore the effects of science upon their daily lives will attract student to careers into oceanic and related sciences and further studies in programs on the University of Alaska Fairbanks campus in Fairbanks. Very few Native students enter scientific fields, and there has only been one Native Ph.D. recipient (in geophysics) at the University of Alaska to date. This program currently supports another Alaska Native Ph.D. student conducting his thesis work on Arctic Ocean life. The Institute of Marine Science produces a major portion of the doctorates at the University of Alaska, and the Kuskokwim Campus will improve the chances for participation of Rural Alaska Native students in a program rich in research experience.

In addition to identifying and recruiting Alaska Native students, we conducted, through this training program, nurturing activities which, through past experience, we have found often makes the difference between success and failure. Although we will continue to provide direct contact in our laboratories between the scientist and student, we will conduct additional supportive activities through other programs as UAF, e.g., the National Science Foundation Polar Ice Coring Office (PICO) programs.

## OBJECTIVES

Our goals are to increase the number of Native students who pursue degrees in science, math, or engineering through their association with our research projects in the marine sciences. The marine sciences incorporate all of the primary disciplines (physics, biology, chemistry, geology, and mathematics) in the marine sciences. Role modeling and nurturing of the student interests through project association are important to advancing the student's career.

The University of Alaska Fairbanks operates branch campuses at Bethel, Nome, and Kotzebue, and cooperates with the Higher Education Center at Barrow. These campuses and centers have served as the sites for some of the proposed activities. The Fairbanks campus has used the ocean-going and remote sensing capabilities.

Students at the graduate level will of necessity have much closer contact with their faculty and peer group, nevertheless they will still have a strong identity with other Native students. It is our intention to enlist the aid of our Native students to serve as role models for science oriented students just entering college or at the high school level.

We consider the nurturing activities vital to the success of this program, recognizing the stress inherent in trying to adjust to the urban academic environment. We feel that our program is enhanced by the association between the School of Fisheries and Ocean Science (SFOS) and the Kuskokwim Campus. One of the primary goals of the Kuskokwim Campus is to provide village Native Alaskans with both the social and academic skills needed prior to transition onto the urban campus. Collaboration with other UAF programs will further assist and nurture the student to ease the transition from the rural community. Through UAF native oriented programs on the Fairbanks campus students will be able to have access to the preparatory courses if required, support and social activities through Rural Student Services (RSS).

Our involvement will also include another ingredient: maintenance of contact with the student's community and a formal interface with Alaska Native corporations and governments. We have also participated in a symposium on arctic science for Alaskan Eskimos.

As part of this mentorship program we are proposing to provide the students with a summer training program which will be in close collaboration with the Institute of Marine Sciences and School of Fisheries and Ocean Sciences. This program will be carried out at the SFOS/IMS Kasitsna Bay Laboratory during 1992 if approved by ONR. In addition to formal instruction in the areas of science they will have the opportunity to interact with graduate students, collaborate with each other, and work one-on-one with faculty members. Part of the hands-on experience will include use of UAF's ocean going vessels, remote sensing equipment, and other laboratory facilities at Seward and/or Kasitsna Bay laboratories.

Another objective achieved the past two years has been to involve area high school students in these collaborative sponsored research projects. The local school districts and their science teachers are our main source of students for these programs. One village student spent her second year in a two-week jointly sponsored research field station on the delta. It is this type of foundation that will identify, engage, nurture, and eventually bring Native students into our University programs.



### THIS CONTRACT PERIOD

Although this last year efforts can be considered prenatal at best, they do have the full endorsement of the Association of Village Council Presidents (AVCP), the State of Alaska Department of Fish and Game, and the United States Fish and Wildlife Service all of which have supported the campus in its program development. Of interest to the above agencies is the desire to improve upon the concept of cooperative management of the region's marine and terrestrial resources. Cooperative management of the natural resources demands an informed public. Even those involved students who return to their villages without pursuing further education can provide a greater understanding of science by sharing what they have learned with other residents of their towns. This entire effort will be enhanced when the scientists who address the region's people in the future are Native Alaskans.

In pursuit of this goal we propose during this school year that we will select and provide support for two qualified high school students to join Dr. Kelley's spring break cruise to the glacier fiords on the R/V *Alpha Helix* or to a marine station.

In addition this contract has contributed \$1000.00 for student travel to attend the American Indian Science and Engineering Society (AISES). We worked closely with AISES which is a clearing house for science, math, and engineering students as well as U.A.F.'s Rural Student Services (RSS). There are currently 27 members of AISES.

We initiated an experimental 1 week mini-course in marine science (physical oceanography, marine geology, and marine chemistry) at the Institute of Marine Sciences and School of Fisheries and Ocean Sciences Kasitsna Bay Laboratories. This was for science teachers (Instructor: Dr. J. Kelley) and provided for interaction between students and teachers, and undergraduates in the marine sciences. We propose an expanded version of this in our future direction for the summer of 1992.

### EVALUATION

We desire to follow up on the effectiveness of this program especially to discover ways in how we make modifications and improvements in the program.

We do have a high degree of collegiality among the mentors and students on a continuing basis. However, we wish to follow our students career's, if we can, once they leave the program. Appendix 6 presents a draft questionnaire that we plan to use to assess effectiveness of the program.

Further, in order to track our students, we use an intake form to register our students with a faculty or staff mentor (Appendix 7).

### FUTURE DIRECTION

We will continue to actively contribute funds for Alaska Native student members of AISES to participate in the national conference.

We will provide funds for up to five students to participate in a summer practicum in Oceanography at the University of Alaska Kasitna Bay laboratory during the summer of 1992. This summer training would involve a period of formal instruction followed by hands-on experience with research, including work on board an oceanographic vessel. The five students will be provided with a stipend and travel to the laboratory. Travel and two months salary will be provided for instructors, one

of them to be Dr. Schall or a designee and one from the School of Fisheries and Ocean Sciences or designee. Additional funds are required for this project.

**Students Progress:** Evaluation of students progress will be made by the supervisors of the project(s). Records of student participation will be archived. These students will be tracked on an annual basis by follow-up contact to access their educational and career progress (See also Appendix 8 & 9). During the project year, at the University we plan to follow student progress through an annual report (Appendix 10).

Briefly stated our project field practicum is considered essential to introduce all students to the application of physical, chemical, geological, and ecological principles to oceanographic processes and problems. The IMS/SFOS laboratory at Kasitsna Bay and Seward offers an excellent opportunity for marine laboratory studies, instruction and convenient access to the sea.

We plan to invite graduate students from the University as well as science teachers to participate. A pilot program during the summer 1991 proved to be highly successful, and we plan to suggest expansion of this idea.

#### 1. PROJECTED STUDENT PARTICIPATION

- \* Professor Duffy requested one student to work in the field of marine biochemistry
- \* Professor Kelley requested a student to work on a project related to marine engineering
- \* Professor Sedinger and Schall requested two students (P. Kuzerak and Terri Fitka) to work in the field of marine biology
- \* Professors Shapiro and Weeks requested continuation of support for a student (R. Glenn) to work on a sea ice project for his Ph. D.
- \* Dr. Ken Coyle requested an additional student (T. Rogers) to work on an invertebrate marine biology project and to participate in NOAA undersea vehicle cruises to Chukchi and Bering Sea.
- \* During the Spring break at UAF we wish to offer an opportunity for two Native high school students who have a recognized proficiency in the sciences as determined by their teachers to participate in a cruise to a tide water glacier fiord aboard the R/V *Alpha Helix*. Dr. Kelley has traditionally made one or two berth available for outreach to the high school community.

#### 2. AMERICAN INDIAN SCIENCE AND ENGINEERING SOCIETY (AISES)

We plan to increase our involvement with the American Indian Science and Engineering Society (AISES) which is an excellent clearing house and peer group organization of Native college students with majors in science, math, and engineering. This year (calendar 1991-92) we intend to contribute \$2000 toward participation of the students at the AISES national meeting.

3. SYMPOSIUM ON ARCTIC SCIENCE EDUCATION FOR ALASKA  
ESKIMOS: YUPIIT KANGINGNAURUTAIT

Dr. Lawrence Duffy participated in the "Arctic Science Education for Alaska Eskimos Symposium." This symposium was held at Kuskokwim College in Bethel, Alaska, on 8-10 August 1991. Dr. Duffy participated in discussions about encouraging Yup'iks to enter science careers and to use the knowledge and experience of local village elders. On Saturday, 10 August, Dr. Duffy made a presentation about the research and education program at Kasitsna Bay (supported by NSF and ONR). It should be noted that the meeting was attended mainly by wildlife field biologists and Dr. Duffy was the only representative for marine science and laboratory science.

Several participants told of their educational experience and strongly recommended:

- a. Financial Aid - Village students have less access to currency than more traditional middle class students.
- b. Mentorship Programs - These programs fit better with the traditional training experienced by the hunting/gathering lifestyle of Alaskan Eskimos.
- c. More University scientists to visit rural Alaska and talk with students about science careers.

4. EQUIPMENT

We have had to barrow equipment from several sources (e.g., Seward Marine Station) to take to outlying field station to provide training for our students. There is an urgent need to acquire a small portable CTD (e.g., SEABIRD) and lightweight sampling equipment (e.g., grabs water sampling bottles). We estimate that the cost for acquisition to be approximately:

1. CTD with software, lightweight computer and printer	\$ 15,000
2. Grabs	2,000
3. Bottles	3,000
4. Nets	2,500
5. General at-sea support equipment & supplies	2,500
6. Biochemical analytical equipment - chromatography	<u>10,000</u>
	\$ 35,000

This will require no-cost modification to our present grant. This may or may not be approved and must be discussed with our ONR project manager.

5. PRACTICUM IN ARCTIC OCEANOGRAPHY

During the summer 1992 we would like to take up to five students to Barrow for one week to obtain practical experience in working on ice covered seas. We have made preliminary discussions with members of the North Slope Borough (Dept.

of Wildlife Conservation and the Arctic Sivunmun Lisagvik College (Barrow) and they are not only agreeable to this project, but willing to help with lodging and some logistic support on a not-to-interfere lease.

We plan to coordinate this project as an extension of the field course at Kasitsna Bay.

6. SUMMARY OF COSTS PROJECTED FOR FUTURE ACTION OR GRANT MODIFICATION

Estimated Cost:

6.1	Equipment	35,000	(1)
6.2	Summer Practicum at Kasitsna Bay		
*	Faculty Salaries (2)	12,000	
*	Faculty Travel to Kasitsna Bay	2,000	
*	Students Travel (5)	3,000	
*	Student Stipend	-0-	(2)
*	Food Costs	3,000	(3)
*	Laboratory Day Charges @ \$250/day for one month	<u>7,500</u>	
		\$ 27,500	
6.3	Summer field experience at Barrow - one week		
*	Faculty Salaries (2)	-0-	(4)
*	Faculty Travel (2)	\$ 1,200	
*	Faculty Lodging/ Per Diem @ 5 nights	1,200	
*	Students Travel (5)	3,000	
*	Students Lodging/Food	2,500	
*	Shipping (equipment)	500	
*	Local Rental of Boats	<u>2,000</u>	
		\$ 10,500	
6.4	Spring Break Training on R/V <i>Alpha Helix</i>		
*	Transportation for students (2)	\$ 2,000	
*	Per Diem	<u>200</u>	
		\$ 2,200	

(1) Can be reprogrammed in calendar 1990/91 grant if approved

(2) No cost - Students are already on stipend

(3) Faculty/students must provide/cook food

(4) Salaries accounted for in section 6.2

**APPENDIX 1**

**MEMORANDUM**

**L. Shapiro and R. Glenn  
to J. Kelley**

## MEMORANDUM

To: J. Kelley

From: L. Shapiro - Mentor  
R. Glenn - Student

Date: October 1, 1990

Subject: Report on Richard Glenn's activities and request for additional funding for the current year.

Project Title: Measurement and Simulation of the Profile Properties of Undeformed First-Year Sea Ice; Supported by the National Science Foundation.

Principal Investigator: W.W. Weeks  
Co-Principal Investigator: L. H. Shapiro  
Student Trainee: Richard Glenn; PhD student in Geophysics

### Project Description:

The mechanical properties of first year sea ice are known to be highly variable in both space and time, and the variations are large enough that they must be incorporated into any treatment of the properties of sea ice sheets. The purpose of this project is to test and extend a model which predicts the composite properties of ice sheets from the meteorological parameters that determined the growth history of the ice. The project combines field and laboratory work to monitor the thickness and composition of first year ice sheets which begin to form at different times of the year (and thus have different histories) near Barrow, Alaska. Structural and mechanical parameters are then measured on samples collected from ice with different histories and the results are used to test and modify the theoretical model.

### Student Activities:

Richard was at Barrow for the entire ice year (September, 1989 to July, 1990). He did the sampling and participated in all of the laboratory work and data analysis. In addition, he made general observations of processes involved in the initial formation, growth, deformation and decay of the ice sheet.

Richard did the following with the funds from JK:

1. Lectured for two weeks on Geology and Sea ice to a Barro H.S. science class and took the students on a field trip.
2. Spoke on opportunities and Arctic science during "career day" at Barrow H.S.
3. Lectured to elementary school 5th grade classes once.
4. Worked with H.S. vice-Principal and a Special Asst. to the Mayor of the North Slope Borough to organize a conference on science education in the Arctic called "developing strategies for increasing science awareness in the Arctic." Conference was funded by the NSB school district, UAF, plus contributions from other local organizations. There were about 200 attendees including representatives from UAF, State of Alaska, NSF, and other educational organizations from as far away as New York state. Richard gave an invited presentation at the conference and chaired a panel.

5. Gave several informal field trips and tours of the research project to local citizens and students.
6. Was on the radio twice on interview programs regarding science education.

How was money used? -- the funds provided part of Richards assistantship while at Barrow.

#### Future plans

The field phase of the project to continue for one additional year, and Richard's degree program will probably be completed about a year later. Richard will remain in Fairbanks taking courses for the current (Fall, '90) semester, and then return to Barrow for the Spring to do additional field work. In addition to his own studies while in Fairbanks, Richard serves as a volunteer tutor for Rural Student Services. On his return to Barrow he will renew his involvement with the school system and other activities there. In addition, if time and other commitments permit, he will visit schools in other North Slope villages to lecture, etc.

#### Funding Request:

\$5K for salary plus additional funds for travel to other North Slope villages to make presentations to students.

## **APPENDIX 2**

### **COMPARATIVE BIOCHEMISTRY OF AMYLOID AND AMYLOID PRECURSOR PROTEIN**

**Lawrence K. Duffy, Mentor**  
**Rebecca Reynolds, Student**



## Comparative Biochemistry of Amyloid and Amyloid Precursor Protein

Lawrence K. Duffy, Associate Professor of Chemistry and Biochemistry - Mentor

Rebecca Reynolds - Student

We are currently studying the formation of brain amyloid by developing peptide models and observing their physical properties. The amyloid model we chose is one that appears to be associated with aging. In this case, the amyloid precursor protein is a membrane protein whose processing leads to small amyloidogenic peptides which tend to form fibrils. At present, we have a very shallow understanding of why some peptides form beta-sheets and aggregate into amorphous forms while others form fibrils. We are now synthesizing peptide analogues and characterizing them. The effect of different amino acid substitutions on the structure of amyloid as mimicked by these analogues is monitored by fluorescence spectroscopy and X-ray diffraction. Binding and toxicity assays of the peptide analogues are also being performed and we are isolating amyloid peptides from aging salmon brains.

The student will synthesize peptides, characterize and initiate CD spectroscopy studies of the amyloid peptides. The student will also study the effect of metals and other proteins on the peptide's conformation. CD spectroscopy will help us gather a different type of data and enable us to study the effects of pH, salts and temperature. These studies are on the cutting edge of protein biochemistry and the results will be used in understanding protein structure and behavior in general and the relevant forces in protein folding and stabilization. Also the effect on amino acid substitutions on the ability of these peptides to form beta-sheets in aqueous solutions will be monitored using the spectropolarimeter. Preliminary CD studies by others have indicated a possible conformational transition based on peptide length. These studies need to be confirmed and expanded.

Rebecca Reynolds worked closely with technical staff and Dr. Duffy in learning the use of the HPLC and amino acid analyzer. This intensive research experience led her to a career decision to enter an M.D./Ph.D. program at Stanford University. Her work resulted in two publications related to her learning the use of HPLC and amino acid analyzer related protein analyses.

### Publications:

- Duffy, L. K., R. Reynolds, and J. P. Harrington. 1990. Partial amino acid sequences of several globin chains from the sockeye salmon, *Oncorhynchus nerka*. *Comp. Biochem. Physiol.* 96B:41-45.
- Duffy, L. K., R. A. Reynolds, and J. P. Harrington. 1990. HPLC separation and characterization of the a and b chains of Alaskan sockeye salmon hemoglobin. *J. Chromatog.* 512:292-297.

**APPENDIX 3**

**REPORT ON OFFICE OF NAVAL RESEARCH GRANT  
TO INVOLVE ALASKA NATIVE STUDENTS IN  
MARINE RESEARCH PROJECTS**

**James S. Seding**

## **Report on Office of Naval Research Grant to Involve Alaska Native Students in Marine Research Projects**

James S. Sedinger

I had one student involved in my field research on the Bering Sea coast of the Yukon-Kuskokwim Delta. The student, Terri Fitka, is from Marshall, a village on the Yukon River. The student was originally interviewed in Fairbanks and offered a student position through the University of Alaska. She was subsequently offered a cooperative education position with the United States Fish and Wildlife Service. Because the latter position comes with a high probability of receiving a permanent position I encouraged Terri to accept it, which she did. I arranged for Terri to be assigned to the Yukon-Delta National Wildlife Refuge and she was able to work with us in the field from late June through late July. She was absent from the field site for several days during early August owing to a death in her family.

Terri is a Biology major. She assisted us with a study of distribution, population dynamics and use of estuarine habitats by black brant, a marine goose of the Pacific Coast. Her duties included monitoring habitat use, noting the presence of marked individuals and applying individually recognizable tags to brant. Terri will be returning to UAF in fall 1991 for her Sophomore year.

**APPENDIX 4**

**CURRENT MSIP ACCREDITATION LIST**



UNITED STATES DEPARTMENT OF EDUCATION  
WASHINGTON, D.C. 20540

RECEIVED

DEC 04 1989

November 13, 1989

Dr. Gerald W. Monatt  
Dean  
College of Rural Alaska  
University of Alaska Fairbanks  
708 Gruening Building  
Fairbanks, AK 99775-0900

Dear Dr. Monatt:

We have received a letter dated November 13, 1989 from Robert L. Bowlin, Associate Director, Commission on Colleges, Northwest Association of Schools and Colleges attesting to the full and satisfactory accreditation status of the Chukchi, Kuskowim and Northwest campuses of the University of Alaska Fairbanks.

We are therefore pleased to advise you that as the result of the receipt of this affirmation of accreditation, the Chukchi, Kuskowim and Northwest campuses of the University of Alaska Fairbanks are eligible to apply for and receive MSIP awards, provided, of course, that the accreditation status remains satisfactory and the institutional underrepresented minority student enrollment continues to exceed 50 percent of the total student body.

Thank you for your interest in MSIP.

Sincerely,

John E. Bonas  
Program Officer  
Minority Science Improvement Program

cc: Dr. Argelia Velez-Rodriguez

**MINORITY SCIENCE IMPROVEMENT PROGRAM (MSIP)**

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**LISTING OF MINORITY COLLEGES AND UNIVERSITIES**

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**MAY, 1990**

For information, contact:  
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Minority Science Improvement Program  
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## PREFACE

The accompanying Listing of Minority Colleges and Universities is a compilation of American accredited colleges and universities that are defined as "minority" according to criteria set forth in the Fiscal Year 1990 Announcement and guidelines for the Minority Science Improvement Program (MSIP). (See the Higher Education Act as amended, Title X, Part B, Subpart 1; 34 CFR Parts 637 and 735, 1981.)

The Listing is derived from ED directories and publications that contain information on all U.S. colleges and institutions. However, much of the data in this Listing has been updated and, in some cases, corrected.

The Listing is updated periodically by MSIP staff as more accurate information becomes available. Therefore, it is used internally as a guide to minority institutions and not as an authoritative directory. It is not an official ED directory of minority institutions. Users are cautioned to use the Listing with these limitations in mind.

## DEFINITIONS

\* Accredited means currently certified by a Federally recognized accrediting agency or making progress toward achieving accreditation.

\* Minority means American Indian, Alaskan Native, Black (not of Hispanic origin), Hispanic (including persons of Mexican, Puerto Rican, Cuban, and Central or South American origin), Pacific Islander or other ethnic group underrepresented in science and engineering. It is generally understood that these minority persons are United States citizens.

\* Minority institution means an accredited college or university whose enrollment of a single minority group or a combination of minority groups as defined here exceeds fifty percent of the total enrollment.

\* Ethn means:

AI	= American Indian/Alaskan Native
CO	= Combination of minorities
HB	= Historically Black (recognized by ED as established prior to 1964)
HM	= Hispanic/Mexican
PB	= Predominantly Black
PI	= Pacific Islanders/Asian
PR	= Puerto Rican

A. Velez-Rodriguez  
J.E. Bonas  
May, 1990

LISTING OF MINORITY COLLEGES AND UNIVERSITIES  
MAY, 1990

ALPHABETIZED BY STATE AND INSTITUTION

STATE	INSTITUTION	ETHN	TYPE	HIGED	ADDRESS	CITY	ZIP CODE	PHONE
AK	ISLANDS COMMUNITY COLLEGE	AI	2PUB	AA	P.O. BOX 490	SITKA	99835	(907)747-6653
AK	KUSKOKWIM COMMUNITY COLLEGE	AI	2PUB	AA	BOX 368	BETHEL	99559	(907)543-2621
AK	SHELDON JACKSON COLLEGE	AI	4IND	Bac	801 LINCOLN STREET	SITKA	99835	(907)747-3666
AK	TANANA VALLEY COMMUNITY COLLEGE	AI	2PUB	AA	4280 GEIST ROAD	FAIRBANKS	99701	(907)474-7812
AL	ALABAMA A&M UNIVERSITY	HB	4+PUB	Soc	P.O. BOX 285	NORMAL	35762	(205)859-7222
AL	ALABAMA STATE UNIVERSITY	HB	4+PUB	Soc	915 SOUTH JACKSON STREET	MONTGOMERY	36195	(205)293-4201
AL	BARVER STATE TECHNICAL COLLEGE	HB	2PUB	AA	414 STANTON STREET	MOBILE	36617	(205)473-8692
AL	CONCORDIA COLLEGE	HB	2IND	AA	1804 GREEN STREET	SELMA	36701	(205)872-3053
AL	FREDD STATE TECHNICAL COLLEGE	HB	2PUB	AA	3401 MARTIN L. KING, JR.	TUSCALOOSA	35401	(205)752-7880
AL	LANSON STATE COMMUNITY COLLEGE	HB	2PUB	AA	3060 WILSON ROAD, S.W.	BIRMINGHAM	35221	(205)925-1666
AL	LOMAX-HANNON JUNIOR COLLEGE	HB	2IND	AA	SOUTH CONECUH STREET	GREENVILLE	36037	(205)382-6605
AL	MILES COLLEGE	HB	4IND	Bac	P.O. BOX 3800	BIRMINGHAM	35208	(205)923-2771
AL	OAKWOOD COLLEGE	HB	4IND	Bac	OAKWOOD RD., N.W.	HUNTSVILLE	35896	(205)837-1630
AL	S.D. BISHOP STATE JUNIOR COLLEGE	HB	2PUB	AA	351 N. BROAD STREET	MOBILE	36690	(205)690-6412
AL	SELMA UNIVERSITY	HB	4IND	Bac	1501 LAPSLEY STREET	SELMA	36701	(205)872-2533
AL	STILLMAN COLLEGE	HB	4IND	Bac	P.O. ORAMER 1430	TUSCALOOSA	35403	(205)349-4240
AL	TALLADEGA COLLEGE	HB	4IND	Bac	527 W. BATTLE STREET	TALLADEGA	35160	(205)362-0206
AL	TRENHOLM STATE TECHNICAL COLLEGE	HB	2PUB	AA	1225 AIR BASE BOULEVARD	MONTGOMERY	36108	(205)832-9000
AL	TUSKEGEE UNIVERSITY	HB	4+IND	Mas		TUSKEGEE	36088	(205)727-8501
AR	ARKANSAS BAPTIST COLLEGE	HB	4IND	Bac	1600 BISHOP STREET	LITTLE ROCK	72202	(501)372-6883
AR	PHILANDER SMITH COLLEGE	HB	4IND	Bac	412 W. 13TH STREET	LITTLE ROCK	72202	(501)375-9845
AR	SHORTER COLLEGE	HB	2IND	AA	604 LOCUST STREET	LITTLE ROCK	72114	(501)374-6305
AR	UNIVERSITY OF ARKANSAS, PINE BLUFF	HB	4PUB	Bac	UNIV. DR., P.O. BOX 4038	PINE BLUFF	71601	(501)541-6500
AS	AMERICAN SAMOA COMMUNITY COLLEGE	PI	2PUB	AA	P.O. BOX 2609	PAGO PAGO	96799	(0VS)688-9156
AZ	AMERICAN INDIAN BIBLE COLLEGE	AI	4IND	Bac	10020 NORTH 15TH AVE.	PHOENIX	85021	(602)944-1335
AZ	NAVAJO COMMUNITY COLLEGE, TSAILE	AI	2PUB	AA		TSAILE	86556	(602)724-3311
AZ	SOUTH MOUNTAIN COMMUNITY COLLEGE	CO	2PUB	AA	7050 S. 24TH ST.	PHOENIX	85040	(602)243-6661
CA	LA STATE UNIV., DOMINGUEZ HILLS	CO	4+PUB	Mas	1000 E. VICTORIA STREET	CARSON	90747	(213)516-3300
CA	LA STATE UNIV., LOS ANGELES	CO	4+PUB	Doc	5151 STATE UNIVERSITY DR.	LOS ANGELES	90032	(213)224-0111
CA	COMPTON COMMUNITY COLLEGE	PB	2PUB	AA	1111 E. ARTESIA BOULEVARD	COMPTON	90221	(213)637-2660
CA	DUO UNIVERSITY	AI	4IND	Bac	P.O. BOX 409	DAVIS	95617	(916)758-0470
CA	DON BOSCO TECHNICAL INSTITUTE	HM	2IND	AA	1151 N. SAN GABRIEL BLVD.	ROSEMEAD	91770	(213)280-0451
CA	EAST LOS ANGELES COLLEGE	HM	2PUB	AA	1301 BROOKLYN AVE.	MONTEREY PARK	91754	(213)265-8650
CA	IMPERIAL VALLEY COLLEGE	HM	2PUB	AA	P.O. BOX 158	IMPERIAL	92251	(619)352-8320
CA	LOS ANGELES MISSION COLLEGE	CO	2PUB	AA	1212 S. SAN FERNANDO ROAD	SAN FERNANDO	91340	(818)365-8271
CA	LOS ANGELES SOUTHWEST COLLEGE	PB	2PUB	AA	1600 W. IMPERIAL HIGHWAY	LOS ANGELES	90047	(213)777-2225
CA	LOS ANGELES TRADE-TECHNICAL COLLEGE	CO	2PUB	AA	400 W. WASHINGTON BLVD.	LOS ANGELES	90015	(213)746-0800
CA	MERRITT COLLEGE	CO	2PUB	AA	12500 CAMPUS DRIVE	OAKLAND	94619	(415)531-4911
CA	NATIONAL HISPANIC UNIVERSITY	HM	4+IND	DOC	255 E. 14TH STREET	OAKLAND	94606	(415)451-0511



**APPENDIX 5**

**BROCHURES, ETC.**



Housing program offers students a choice of living situations to meet the diverse needs of both single students and students with families. Residence hall students are served meals in a large dining room, cafeteria style. An extensive support staff guides activities, provides counseling and works hard to make your UAF experience meaningful.

## Timeline for Applications and Attendance - UAF

SEPTEMBER      Apply for admission  
application/ *Portfolio*  
High School Transcript  
RSS Advisor Card (optional)  
Conditional Acceptance

OCTOBER

pending ACT scores and on final transcript

- choice of dorm, \$50 deposit

222

**- FAFSA (from tax copy after your Parents and your taxes are completed )**

- UAF Financial Aid app
- Local/private scholarships

- SES (married/parents)

BLA Regional contractor

Alaska State Loan

15

Have school send final high school transcript with senior grades and graduation date posted

CONF: Summer job to earn \$

**JULY**  
**Financial Aids awarded**

AGENTS: Finders, makers and  
producers of property.

**ALL: Come to UAF Early Orientation**

**AUGUST**  
for New Students (FONS) Program  
**SEPTEMBER STUDY A LOT!**

**SUPPLEMENT**

**For More Information Contact:**

Budie Bendickson,  
Administrative Assistant  
Rural Student Services  
University of Alaska Fairbanks  
304 Chandler, South  
Fairbanks, Alaska 99775-1450



1. The Commission has been informed that the Government of the Republic of the Philippines has agreed to accept the findings of the Commission and to take the necessary steps to ensure that the Commission's recommendations are implemented.



## Rural Student Services

UNIVERSITY OF ALABAMA LIBRARY



Cecilia J. Frenzl

Worried about educational costs and how you could afford college?

Anxious about what you will do once you arrive in Fairbanks?

Afraid that you would be "alone"?

UAF Rural Student Services just might provide a successful introduction to a satisfying college experience and cross cultural life at UAF.



*"In May 1990 I received my bachelor's degree. For years I have dreamt of this day. It's a real tribute to my parents. My parents have always walked in two worlds. Education has been a strong value as has our culture. They're both important."*

Agnes Sweetser  
Galena, AK.

## Help With Going to College

Rural Student Services provides assistance to new students by helping with the necessary forms and paperwork needed to attend the University.

RSS assists students with information and trouble shoot problems with:

- Admission to the University
- Financial Aid
- Housing
- University Life

Rural Student Services also invites high school groups to visit our campus and participate in the following orientation activities:

- College expectations
- Campus tour
- Class visit

*"In the villages, one learns one version, of how and what makes the world. Higher education changes how you see your world, and learn about a new one. It (higher ed) also allows one to learn more about himself and how the world outside the village functions."*

Grant Kashatok

Cecilia J. Frenzl  
Toksook Bay, AK.



UAF recognizes the uniqueness of Alaska and offers an education that links the traditions of the people and land to the knowledge and careers of the 21st century. Students can choose from more than 75 different Bachelor degree majors and 40 graduate programs, many of which focus on rural Alaskan issues.

## Support Services

Students experience many academic and social changes as they go through college. Rural Student Services will assist you in making the transition to University life. RSS advisors provide personal counseling as well as making referrals to other campus support services.

## Peer Counseling

Provided by RSS student counselors to help fellow students with questions and problems.

## Rural Student Services (RSS)

Originally began as a program called Student Orientation Services in 1969, Rural Student Services has become an integral part of UAF student services, particularly on behalf of Native college students. As increasing numbers of Native students graduate from village high schools, the pressure for UAF to meet it's mission of opening higher education opportunities for

## Academic Advising

The University of Alaska Fairbanks considers the academic advisement of students to be an important responsibility. Students coming into the University must make important academic decisions. Your advisor can assist you by explaining programs and requirements, recommending courses and answering your questions.

Rural Student Services provides a thorough and comprehensive advising service with four advisors on staff. A rural student has the option of choosing an RSS advisor.

How do you qualify?

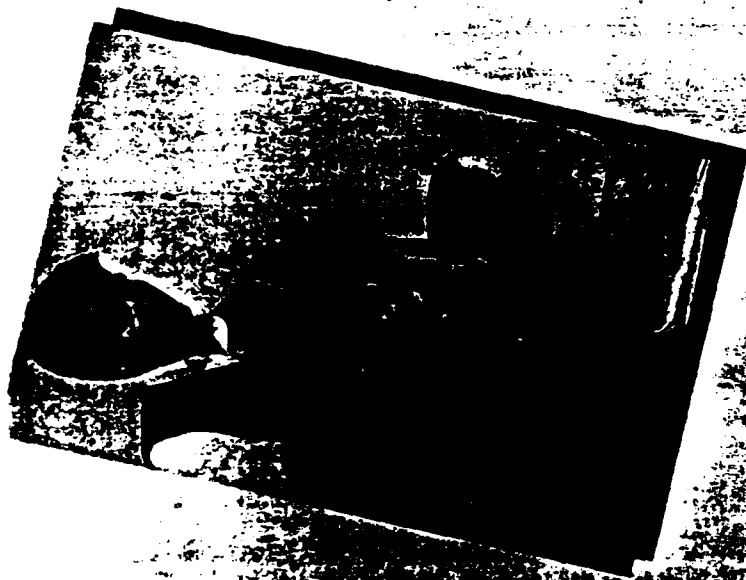
You must:

1. be a full-time undergraduate student and a citizen of the U.S.
2. belong to one of these groups
  - a. first generation college status (i.e., neither parent has a 4 year baccalaureate degree),
  - b. physically handicapped (verification is required),
  - c. financially disadvantaged (income not exceeding 150% of poverty level).



### Joining the program

is a simple process. If you meet the eligibility requirements, please stop by the 508 Grappling Building to fill out an application and schedule an intake interview, or call (907) 474-6887 for more information.



The Student Support Services Project is funded by the United States Department of Education and strives to improve both student retention and student success rate.



UNIVERSITY OF ALASKA FAIRBANKS

appropriate way to achieve your goals and make the most of your opportunities at college.

SSSP is a program to help students at UAF improve their skills and ensure a successful college experience.

The project is unique and specially designed to meet the needs of Alaska Native students. The courses are developed and taught by instructors with extensive cross-cultural experience. Many of the tutors are former SSSP members.

The project networks closely with other Alaska Native programs and related educational activities which promote success for Alaska Native students in college-level studies.



system and using academic resources more effectively.

Once you become a member, you can choose any or all of the following:

- Courses
- Individual Peer Tutoring
- Group Tutoring
- Diagnostic Math and Reading Evaluation
- Advocacy and Personal Support
- Handicapped Student Services

### Courses

are designed especially for SSSP participants. Some are college-credit classes offering help in reading, studying, communication skills, college survival skills and math. Others are preparatory and offer help in reading, writing and math.

### Tutoring

is free to SSSP participants. Individualized and group tutoring is available in all subjects, depending on tutor availability. Guided study groups are established and meet weekly.



### Testing

is provided to aid in advising, course placement and to determine your individual needs so we can help you in the best possible way.

### Advocacy and Personal Support

is provided to help you cope with challenges and to better understand your on-going needs and how to respond to them. Initial interviewing, assessment, selection, and placement within the program is done to make sure your needs are being addressed. Individualized progress monitoring, referral to other campus or community resources and educational assistance focusing on cross-cultural needs are provided to help you adjust to complicated college life.

### Handicapped Student Services

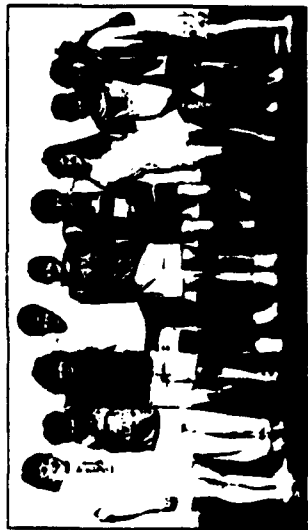
include trained tutors, note-taker coordination, testing accommodations, referrals, and advocacy.

## What do RAHI graduates say?

"You get to meet a great many new friends. You learn so much in such a short period of time. You really do have a chance to challenge yourself, and if you're looking for a challenge, RAHI is the definite place for you."

"RAHI is a college prep program that gives you a taste of college and an inventory of things you need to learn before college."

"Exciting, fun, gives you motivation!"



*RAHI means wonderful new friends from all over Alaska and even from other countries of the circumpolar north.*

*Photo by Philip Kugera*

"You'll meet a lot of new friends and probably won't forget them. You'll learn how to swim, like I did. You'll get prepared for college and what college life is like."

".... It's the best!"

"You can deal with the feeling being away from home. You get a taste of college work and lifestyle."

".... It was a great learning experience."



*RAHI was founded at the request of Alaskan Native leadership who support and participate in the program. AFN president Julie Kikka congratulates Douglas Kernak at the 1990 RAHI graduation.*

*Photo by Cal White*

## Any other questions?

For more information call or write Jim Kowalsky, director, or Denise Wartes ("Warceze"), RAHI secretary:

Rural Alaska Honors Institute  
507 Gruening Building  
University of Alaska Fairbanks  
Fairbanks, AK 99775  
PHONE: 907-474-6886  
FAX: 907-474-5624  
UACN VAX ID: FYRAHI

*The University of Alaska Fairbanks is an affirmative action/equal opportunity employer and educational institution.*



*RAHI math students work on problem solving and develop an appreciation for the richness of math.*

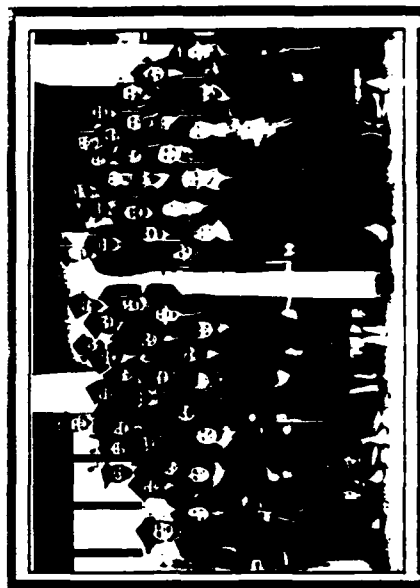
*Photo by Philip Kugera*

UNIVERSITY OF ALASKA FAIRBANKS  
Rural Alaska Honors Institute

# RAHI

Summer 1991

*Challenge Yourself!*



your life, your family's lives, or in the lives of Alaska's Native people? Many answers are "yes."  
**CHALLENGE YOURSELF!** Think about RAHH!

### RAHH? What is it?

It is the Rural Alaska Honors Institute and we call it "RAHH."

It's for Alaska's best and brightest Alaska Native students who have spent all or most of their lives living and attending school in a rural Alaskan community. Students should have at least an overall 3.0 GPA and be juniors ready to become seniors to qualify. RAHH 1991 will also accept a limited number of graduated seniors. At RAHH they'll get their first taste of college life.

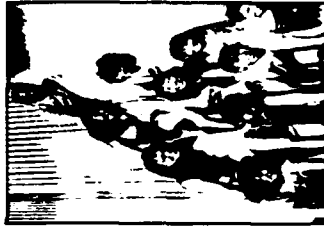


*Teachers and students enjoy close, small group relationships at RAHH where academics and other concerns are addressed to help students build college survival skills.*  
Photo by Philip K. Aggrud

For six weeks during the summer, students who are selected to attend RAHH come to the University of Alaska Fairbanks (UAF) to live and study.

(If you graduate spring 1991 and enroll at UAF fall 1991, you may get UAF academic credit by applying for a special eight week session of RAHH starting June 1, 1991. English and Math courses will be offered for college credit. RAHH alumni receive preference but other seniors are also encouraged to apply.)

ics, writing, a major research paper, Native studies including ANCSA, college orientation, a team research project and swimming. Elective specialty courses include business management, education, science, engineering, and natural resource management. Courses are taught by university professors and high school teachers to help students prepare for college-level study.



*RAHH students build a future of mutual trust and support that will last a lifetime.*  
Photo by Tom Kowalsky

RAHH is challenging, but it's also a lot of fun. You'll meet and make wonderful new friends that may last a lifetime. There are opportunities for outdoor recreational field trips, dances and eating Native foods. Students receive individual help by a supportive staff in everything from personal counseling to mathematics homework.

Who you meet and what you learn at RAHH will be valuable throughout your personal and academic career and beyond. Students feel strongly about their RAHH experience. Many say it will stay with them forever. Probably the toughest day is the last day when students say goodbye to their new friends.

### How much does RAHH cost?

Each Alaskan student selected will receive a full scholarship to attend RAHH covering all travel, room, board, tuition, supplies and student fees.

### How do students apply?

Applications are available from your school counselor or principal, village or regional Native corporation, Native village council or RAHH. Complete and



*The RAHH classroom goes outdoors too!*  
Photo by Philip K. Aggrud

send us your application, ask your school to send the necessary recommendation, transcripts and standardized test scores, and ask a community resident to send their recommendation, all on or before March 1, 1991. Spaces are limited and acceptance to RAHH is competitive, so apply early. We'll let you know in early April whether or not you are accepted by the special RAHH Admissions Committee.

RAHH, for students who will be between their junior and senior years in high school during the summer of 1991, will be held from June 14 to July 26, 1991. For graduated seniors the dates of the special RAHH session are June 1 to July 26, 1991.

### What happens after RAHH?

You'll return home to finish high school (or you'll enroll at UAF fall 1991) with an evaluation of your college readiness, recommendations for your senior year course work, and a plan for applying to college. RAHH will stay in contact with you to help with your college plans.

Students who graduate from RAHH with honors and enroll at UAF may be eligible for special financial awards. RAHH students may arrange for early admission to UAF, allowing them a better selection of residence hall choices.

Later on, RAHH students enrolled in UAF academic degree programs may qualify for paid summer internships with co-sponsoring Native corporations.

**APPENDIX 6**

**PROGRAM EVALUATION FORM**



**MARINE SCIENCES TRAINING PROGRAM  
FOR ALASKA NATIVE STUDENTS  
GRANT: \_\_\_\_\_**

Your Name: \_\_\_\_\_

**PROGRAM EVALUATION FORM**

One of the goals of this program is to improve the recruitment and retention of promising science students in Alaska in the marine sciences. With this goal in mind, we hope that the participants will develop a collegial relationship with their cooperating faculty members. Such a relationship must provide mutual benefit to both the scientists and the participants. Please answer the following questions in light of this goal.

1. What advantages have you gained through your participation in this program?
  
2. Please suggest areas of this program which require improvement.
  
3. Do you anticipate continued interaction with the marine sciences faculty and staff in the future?
  
4. Do you plan to consider a career in the marine sciences or science teaching in the future?
  
5. Other comments:

**APPENDIX 7**

**MARINE SCIENCE TRAINING PROGRAM  
FOR ALASKA NATIVE STUDENTS  
CHARGE AUTHORIZATION**

**MARINE SCIENCE TRAINING PROGRAM FOR ALASKA NATIVE  
STUDENTS**

DATE: \_\_\_\_\_

GRANT NO.: \_\_\_\_\_

FUND NO.: \_\_\_\_\_

**TO WHOM IT MAY CONCERN:**

Stipend charges during the period \_\_\_\_\_ through \_\_\_\_\_  
are authorized for \_\_\_\_\_,  
SS# \_\_\_\_\_. Charges for the entire period are not to  
exceed \$ \_\_\_\_\_ without prior consent.

\_\_\_\_\_, as supervisor of this student,  
is further authorized to charge materials and supplies as necessary for the project.  
These charges are not to exceed \$500 without prior consent.

Tuition waiver for the student is/is not available. If available, a proper request must  
be made to the UAF through the business office.

\_\_\_\_\_  
**Principal/Co-Principal Investigator**

**APPENDIX 8**

**INDIVIDUAL STUDENT COMMENT SHEET**

**MARINE SCIENCES TRAINING PROGRAM  
FOR ALASKA NATIVE STUDENTS  
GRANT \_\_\_\_\_**

**MENTOR:** \_\_\_\_\_ **PROJECT:** \_\_\_\_\_ **DATE:** \_\_\_\_\_

**INDIVIDUAL STUDENT COMMENT SHEET**

- \* Your answers to the following questions will be used by the mentor to improve this program. Please be as thoughtful and constructive as possible in your comments.
- \* You are NOT required to answer any of these questions.

*I. What aspects of this program do you feel were especially good?*

*II. What changes could be made to improve the program?*

*III. Please use the back of this sheet for any additional comments or special questions. Thank you for your participation!*

**APPENDIX 9**

**PARTICIPANT ALUMNI RECORD**

## PARTICIPANT ALUMNI RECORD

The purpose of this questionnaire is to follow the Marine Sciences Training Program participant's career.

NAME: \_\_\_\_\_  
(Last) (First) (Middle)

HOME INSTITUTION: \_\_\_\_\_

PRESENT CLASS: (circle one) Freshman Sophomore Junior Senior  
(if in college)

NOTE: A student between the junior and senior year is classified as a senior.

EXPECTED GRADUATION DATE: \_\_\_\_\_

PERMANENT ADDRESS: \_\_\_\_\_  
\_\_\_\_\_

PHONE NUMBER: ( ) \_\_\_\_\_

GENDER: (circle one) M F

STUDENT'S CAREER GOAL: \_\_\_\_\_

IF GRADUATED, PRESENT OCCUPATION: \_\_\_\_\_

YEAR: \_\_\_\_\_

NAME OF FACULTY MEMBER WITH WHOM STUDENT WORKED:

\_\_\_\_\_  
(Last) (First) (Middle)

SUBDISCIPLINE OF RESEARCH: \_\_\_\_\_  
(Example: Organic electrochemistry)

TITLE OF RESEARCH PROJECT: \_\_\_\_\_  
\_\_\_\_\_

SEMINARS, PROJECTS, OR PUBLICATIONS PARTICIPATED IN BY STUDENT:

COMMENTS: \_\_\_\_\_

DATE: \_\_\_\_\_ INFORMATION PROVIDED BY: \_\_\_\_\_

**APPENDIX 10**

**MARINE SCIENCE TRAINING PROGRAM  
FOR ALASKA NATIVE STUDENTS  
ANNUAL STUDENT PROGRESS REPORT FORM**



**MARINE SCIENCE TRAINING PROGRAM  
FOR ALASKA NATIVE STUDENTS**

**ANNUAL STUDENT PROGRESS REPORT**

DATE: \_\_\_\_\_

GRANT NO.: \_\_\_\_\_

FUND NO.: \_\_\_\_\_

STUDENT NAME: \_\_\_\_\_

FACULTY ADVISOR: \_\_\_\_\_

INSTITUTION: \_\_\_\_\_

**DESCRIPTION OF RESEARCH ACTIVITY:**

*Please attach any photographs/slides or reprints of your reports/papers resulting in whole or in part from the student's participation in your research.*

**TITLE(S) OF REPORT(S) OR PAPER(S) RESULTING FROM THIS ACTIVITY:**